

Institute of Food Safety, Animal Health and Environment BIOR, Latvia

**Council Regulation (EC) No 199/2008 of 25 February 2008**

concerning the establishment of a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy

**Commission Regulation (EC) No 665/2008 of 14 July 2008**

laying down detailed rules for the application of Council Regulation (EC) No 199/2008

**Commission Implementing Decision (EU) 2016/1251 of 12 July 2016**

adopting a multiannual Union programme for the collection, management and use of data in the fisheries and aquaculture sectors for the period 2017-2019

# **Latvia Work Plan for data collection in the fisheries and aquaculture sectors**

**2017-2019**

Version [1] – [2016]

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## SECTION 1: BIOLOGICAL DATA

### **Pilot Study 1: Relative share of catches of recreational fisheries compared to commercial fisheries**

*General comment: This Box fulfills paragraph 4 of Chapter V of the multi-annual Union programme and Article 2 and Article 4 paragraph (3) point (a) of this Decision.*

1. Aim of pilot study is to estimate the relative share of recreational fisheries in total catches. The main focus will be on 4 species – salmon, sea trout, eel and cod. However, pilot study will provide important information also for estimation of the total catches of several other species like flounder, pike-perch, pike where interest of the recreational fishermen is the highest. It should be highlighted that in Latvia the recreational fishery could be explicitly divided into two parts. One part are the fishermen which are using commercial gears the number of which is limited. According to Fisheries rules in Latvia these fishermen are obliged to fill logbooks both fishing in the coastal zone and inland waters. Therefore there is exhaustive information on their catches. The samples collected from commercial fishermen could be applied to these catches because the fishing gears are the same. Therefore the pilot study will be devoted to the second part of recreational fishermen who catch the fishes with different angling tools for which the last inquiry was performed in 2007. For later period we have only information that is presented by organisers of the licenced angling in the inner waters that includes also angling on salmon and sea trout.

#### 2. Duration of pilot study

Duration of the pilot survey will be 2.5 years. In 2017 we will prepare the technical specification of the pilot study that will be based on the recommendations of ICES Working Group on Recreational Fisheries Surveys (WGRFS). The technical specification of the survey will be prepared during first half of 2017. The survey itself will be performed by a firm that is specialised on running social inquiries. The firm will be selected by procurement procedure that will be organised in the first half of summer of 2017. The survey itself will be started in autumn of 2017 and will last for 1 year to cover all the fishing seasons which are different due to use of different angling tools and different target species. The results of the survey will be analysed in September-December of 2018.

#### 3. Methodology and expected outcomes of pilot study

The appropriate methodology will be selected from the reports of Working Group on Recreational Fisheries Surveys (WGRFS). It will include several kinds of inquiries and also visiting of the angling sites. The Pilot study will allow to estimate the volume of catches by anglers for the main target species paying significant attention to salmon, sea trout, eel and cod. Together with the available data

on recreational fishery catches with commercial gears it will be possible to judge whether these catches are important that a regular surveys should be performed.

*(max 900 words)*

## SECTION 1: BIOLOGICAL DATA

### **Text Box 1E: Anadromous and catadromous species data collection in fresh water**

*General comment: This Box fulfills paragraph 2 points (b) and (c) of Chapter III of the multi-annual Union programme and Article 2 of this Decision.*

The wild salmon population in the river Salaca has been monitored by smolt trapping since 1964 and by parr electrofishing since 1993. The Salaca is regarded as salmon index river in the Eastern Baltic. Smolt trap in the river Salaca is usually operated from the end of April till 3rd decade of May at least 3 weeks annually, however the sampling period could differ depending from hydro-meteorological conditions. All caught smolts are measured, 400 – 500 tagged by streamer tags and released upstream from the trap for efficiency calculation.

Parr electrofishing is carried out in permanent 10 – 11 electrofishing stations in the 1st decade of August with area ~3000 m<sup>2</sup> – 5000 m<sup>2</sup>. All caught salmon and sea trout parrs are measured. Electrofishing is carried out regarding standard LVS EN 14011:2003 established on the basis of CEN standard.

There is no commercial fishery for anadromous fishes in fresh waters – rivers.

Eel sampling is performed by the set of 4 small mesh size (8 – 10 mm from knot to knot) fyke-nets in the lower part of the largest Latvian river the Daugava. Fyke nets are in operation from May till October. All caught yellow eels are measured, part of them tagged by Carlin tags and released, but from part of them otholits are collected for the detection of origin (wild or stocked).

Sampling of eel from commercial fishery has been performed by sampling of all caught eels from one trap in the Gulf of Riga. In the last three years number of sampled eel was below 100, all landed eel sampled - length, weight, sex, eye diameter, weight, pectoral fin length is registered. Otholits are stored in the collection. Sampling based on agreement between BIOR and fisheries enterprise.

Starting with 2017 the eel samples will be collected also from commercial fyke-nets which perform fishing in the seaside lake Kisezers also belonging to the basin of the Daugava river. The biological sampling will be the same as in the Gulf of Riga.

The abundance and distribution of eel in inner waters will be sampled also by electrofishing. The sampling will be performed at least on 60 different sites in rivers and lakes which are accessible for eels. All eels will be measured and from part of them otholiths will be taken for age and origin determination. This survey will give additional information on the distribution of salmon and sea trout parrs in other rivers than the index river Salaca.

*(max 250 words per Area)*

SECTION 1: BIOLOGICAL DATA

**Pilot Study 2: Level of fishing and impact of fisheries on biological resources and marine ecosystem**

*General comment: This Box fulfills paragraph 3 point (c) of Chapter III of the multi-annual Union programme and Article 2 and Article 4 paragraph (3) point (b) of this Decision.*

The pilot study is not planned because there are already several monitoring programmes running in which the incidental by-catch of non-intended species is evaluated (see Table 1F in the Table file). The fishing intensity by region could be evaluated from data that are collected by vessel monitoring systems and the data is compiled annually in ICES Working Group on Spatial Fisheries Data (WGSFD 2016).

*(max 900 words)*

## SECTION 1: BIOLOGICAL DATA

### Text Box 1G: List of research surveys at sea

*General Comment: This Box fulfills Chapter IV of the multi-annual Union programme and Article 2 and Article 7 paragraph (3) of this Decision. It is intended to specify which research surveys at sea set out in Table 10 of the multi-annual Union programme will be carried out. Member States shall specify whether the research survey is included in Table 10 of the multi-annual Union programme or whether it is an additional survey.*

#### 1. Baltic International Trawl Survey in the first quarter (BITS Q1).

The survey will be conducted in February-March on the rented research vessel. The primary purpose of the survey is to produce abundance estimates and indices of recruitment for cod and flounder in the Eastern Baltic (Sub-divisions 25-32) that are necessary for tuning VPA and prediction of the recruitment. Other species are also intensively investigated to support ecosystem analyses.

The data will be collected according to “Manual for the Baltic International Trawl Survey” (WGBIFS, 2014, <http://tinyurl.com/pq2f9ok>). The trawling is performed during daylight. The trawling is performed using standard scientific trawl TV-3#-930. Vessel speed during trawling should be 3.0 knots, each first control-haul duration should be 30 minutes however, at location with very dense fish shoals catching will be reduced to 15 minutes. Trawling is performed accordingly to the ICES WGBIFS determined catch-stations scheme (Fig.G.1). Each consecutive fish catch should be sorted out by species in separate boxes or baskets and weighted. The sorted and weighed fish are then used for the length, age and maturity sampling and measurements. Biological sampling procedure and length measurements are performed for cod and flounder. Length distribution should be recorded for all other species from every trawl-station, but with less intensity. For all species the total number and weight is recorded. Sampling level for all species is stratified on the ICES Sub-division level. The age determination is performed in national laboratory. During the survey also the basic hydrological parameters (temperature, salinity, oxygen content) will be measured, collection of ichthyoplankton samples and samples of stomachs of cod will be collected as well as information about marine litter. Collecting the data from the echo-integration conducted during the haul time and between hauls locations will be performed.

The survey is conducted in collaboration with national institutes from Denmark, Germany, Poland, Lithuania and Sweden within the framework of ICES. Survey is part of the Baltic International Trawl Survey (BITS), which is coordinated by the ICES Baltic International Fish Survey Working Group [WGBIFS].

From 2006 Latvian BITS survey is carried out on the rented Polish r.v. “Baltica”. Cooperation is based on the agreement between the Institute of Food Safety, Animal Health and Environment “BIOR” in Riga and the National Marine Fisheries Research Institute (NMFRI) in Gdynia. No cost sharing agreement is used.

#### 2. Baltic International Trawl Survey in the fourth quarter (BITS Q4).

The survey will be conducted in November-December on the rented research vessel. The primary purpose of the survey is to produce abundance estimates and indices of recruitment for cod and flounder in the Eastern Baltic (Sub-divisions 25-32) that are necessary for tuning VPA and prediction of the recruitment. Other species are also intensively investigated to support ecosystem analyses.

The data will be collected according to “Manual for the Baltic International Trawl Survey” (WGBIFS, 2014, <http://tinyurl.com/pq2f9ok>) with the same methodology used in Baltic International Trawl Survey in the first quarter (BITS Q1).

The survey is conducted in collaboration with national institutes from Denmark, Germany, Poland, Lithuania, Estonia and Sweden within the framework of ICES. Survey is part of the Baltic International Trawl Survey (BITS), which is coordinated by the ICES Baltic International Fish Survey

Working Group [WGBIFS].

From 2006 Latvian BITS survey is carried out on the rented Polish r.v. "Baltica". Cooperation is based on the agreement between the Institute of Food Safety, Animal Health and Environment "BIOR" in Riga and the National Marine Fisheries Research Institute (NMFRI) in Gdynia. No cost sharing agreement is used.

### 3. Baltic International Acoustic Survey - BIAS

The survey will be performed in September-October. The survey will be performed on a rented research vessel. The main aims of the survey are to obtain abundance estimates of herring and sprat which are used for tuning VPA for the assessment of herring in Sub-divisions 25-29, +32 and of sprat in Sub-divisions 22-32 of the Baltic Sea. The survey will be carried out in Sub-divisions 26 and 28. The survey will be performed also in the 12 nm zone of Latvian economic zone. The survey track is standard.

The data will be collected according to Manual for the Baltic International Acoustic Survey (BIAS) Version 1.02. (WGBIFS, 2014, Gdynia, Poland). From each trawl the length, weight, sex and maturity of herring and sprat are determined and otoliths for age determination are taken. During the survey also the basic hydrological parameters (temperature, salinity, oxygen content) will be measured, and samples of zooplankton will be collected. Collected data are stored in ICES databases BAD1, as well as in the local database BIODATA.

The survey is conducted in collaboration with national institutes from Finland, Germany, Poland, Estonia, Lithuania and Sweden within the framework of ICES. Survey is part of the Baltic International Acoustic Survey (BIAS), which is coordinated by the ICES Baltic International Fish Survey Working Group [WGBIFS].

From 2005 Latvian BIAS survey is carried out on the rented Polish r.v. "Baltica". Cooperation is based on the agreement between the Institute of Food Safety, Animal Health and Environment "BIOR" in Riga and the National Marine Fisheries Research Institute (NMFRI) in Gdynia. No cost sharing agreement is used.

### 4. Gulf of Riga Acoustic Herring Survey - GRAHS

The survey will be performed in July-August on a rented fishing vessel in the Gulf of Riga (Sub-division 28.1). The main aim of the survey is to obtain abundance estimates of the Gulf of Riga herring which are used for tuning VPA for the assessment of the Gulf of Riga herring (separate assessment unit).

The data will be collected according to Manual for the Baltic International Acoustic Survey (BIAS) Version 1.02 (WGBIFS, 2014, Gdynia, Poland). From each trawl the length, weight, sex and maturity of herring and otoliths for age determination are taken. During the survey also the basic hydrological parameters (temperature, salinity, oxygen content) are measured, and the samples of zooplankton will be collected. Collected data are stored in national database BIODATA.

The survey is conducted in collaboration with national institute from Estonia within the framework of ICES. Survey is coordinated by the ICES Baltic International Fish Survey Working Group [WGBIFS].

Survey is carried out on the rented fishing vessel. Cooperation is based on the agreement between the Institute of Food Safety, Animal Health and Environment "BIOR" in Riga and Latvian commercial fishing company selected at procurement procedure. During the survey Latvian scientists work together with Estonian colleagues from Estonian Marine Institute (EMI). No cost sharing agreement is used.

### 5. Sprat Acoustic Survey - SPRAS

The survey will be performed in May on rented research vessel or a rented trawler. The main aim of the survey is to obtain abundance estimates for sprat. The data are used for the assessment of sprat since 2004. Besides, this survey can give reliable estimates of sprat

maturity not available from other sources. Collected data are stored in ICES databases BAD1, as well as in the local database BIODATA.

The data will be collected according to Manual for the Baltic International Acoustic Survey (BIAS) Version 1.02 (WGBIFS, 2014, Gdynia, Poland). From each trawl the length, weight, sex and maturity of herring and sprat are determined and otoliths for age determination are taken. During the survey also the basic hydrological parameters (temperature, salinity, oxygen content) will be measured, and samples of zooplankton, and ichthyoplankton will be collected. The survey track is standard.

The survey is conducted in collaboration with national institutes from Germany, Estonia and Lithuania within the framework of ICES. Survey is part of the Baltic International Sprat Acoustic Survey (SPRAS), which is coordinated by the ICES Baltic International Fish Survey Working Group [WGBIFS].

The survey is carried out on the rented Polish r.v. "Baltica". Cooperation is based on the agreement between the Institute of Food Safety, Animal Health and Environment "BIOR" in Riga and the National Marine Fisheries Research Institute (NMFRI) in Gdynia. No cost sharing agreement is used.

#### 6. Latvian Flatfishes Juvenile Survey

The survey will be performed from May to October in the coastal zone of the Baltic Sea. The main aim of the survey is to obtain abundance estimates of flatfish (flounder and turbot) juveniles.

The data will be collected with beach seine (mesh size in cod-end 8 mm) from the coast in surf zone of the Baltic sea on the main nursery area of flatfishes. The sampling area is approximately 4000 m<sup>2</sup>, the distance from the coastline is approximately 130 m. In every sampling area (Kolka - Gulf of Riga, Kolka – Irbe Strait, Lielirbe, Jurmalciens, Pape – Baltic Sea) 5 samples will be collected. Other species (fish and nektobenthos) are also intensively investigated to support ecosystem analyses. During the survey the basic hydrological parameters (temperature, salinity, and oxygen content) will be measured.

This is not an internationally coordinated survey however it is planned to use the results of the survey in the assessment of flounder in the Central Baltic.

No cost sharing agreement is used.

#### 7. Gulf of Riga Demersal Fish survey

The survey is performed three times in a year - in May, August and October on a rented MRTK type fishing trawler in the Gulf of Riga (Sub-division 28.1). The primary purpose of the survey is to produce abundance estimates of benthic fish species and get hydrological (temperature, salinity, oxygen content) and zooplankton samples in the trawling stations during the survey. The observations of the survey provide data on biological diversity changes in the Gulf of Riga.

Stations cover the Gulf of Riga area from 8 m coastal zone till 56 m depth in locations that are selected on appropriate soil basis for benthic trawling. Trawling is performed with a special demersal trawl 18 m wide and 1.5 m high when in action and with 17 mm - 6 mm mesh size. Vessel speed during trawling is 3.0 knots, hauls duration is 30 minutes however, at location with very dense fish shoals catching will be reduced to 15 minutes. All benthic fishes and invertebrates are separated in the catch and analysed.

This is not an internationally coordinated survey.

No cost sharing agreement is used.

## 8. Coastal fish monitoring

The objective of survey is to monitor changes in the fish communities in relation to the impact of eutrophication, habitat alteration, climate change, toxic substances, alien species and fishery. The results of the survey are used for the management of fishery in the Latvian coastal zone.

Data are collected in Latvian coastal area at 3-5 m depth using Nordic coastal multi-mesh gillnets (Guidelines for Coastal Fish Monitoring Sampling Methods of HELCOM; [http://helcom.fi/Lists/Publications/Guidelines for Coastal fish Monitoring of HELCOM.pdf](http://helcom.fi/Lists/Publications/Guidelines%20for%20Coastal%20fish%20Monitoring%20of%20HELCOM.pdf)). These nets are 45 m long and made up of 9 parts which have different mesh sizes (from 10 to 60 mm). Monitoring will be performed one (Jurkalne, Daugavgriva) and two (Pape) times per year, but in the rest of areas – once (Salacgriva) and twice (Liepaja, Plienciems) per month, from March till November. Length and weight of all fishes is measured and other information like weather conditions, depth, water temperature, salinity and Secchi depth are recorded.

This is not an internationally coordinated survey however it is performed by methodology of the HELCOM and it is performed also in other countries of the Baltic Sea.

No cost sharing agreement is used.

No thresholds were applied for any of the surveys.

*(max 450 words per survey)*

## SECTION 2: FISHING ACTIVITY DATA

### Text Box 2A: Fishing activity variables data collection strategy

*General comment: This Box fulfills paragraph 4 of Chapter III of the multi-annual Union programme and Article 2, Article 4 paragraph (2) point (b) and Article 5 paragraph (2) of this Decision. It is intended to describe the method used to derive estimates on representative samples where data are not to be recorded under Regulation (EU) No 1224/2009 or where data collected under Regulation (EU) No 1224/2009 are not at the right aggregation level for the intended scientific use.*

#### 1. Description of methodologies used to cross-validate the different sources of data

The capacity, effort and landing data are collected under *Regulation (EU) No 1224/2009*.

The Capacity data are derived from the FVR (Fishing Vessel Register) which is the part of Latvian Ship Register integrated into the ICIS Information System and among other contain following information on technical parameters:

- Age of the vessel
- Power of main engine,
- Total vessel length (LOA),
- Tonnage GT.

The vessels listed in Fleet Register but which have not filled the logbooks during the year will be considered as inactive vessels.

The basis for the calculation of the Efforts and Landings will be data from logbooks. All Latvian commercial fishermen including vessels <10 m according to the Latvian legislation have to fill logbook for every fishing trip they make. The filled logbooks are stored in the ICIS information system and include all mandatory information from Commission Implementing Decision 2016/1251 Table 4 (Fishing Activity Variables). The ICIS information system and coastal logbooks contain also data about recreational fishery performed by commercial fishing gears (nets, fyke-nets). These data are collected according to the internal Latvian legislation. Only information on fish species being obligatory under Commission Implementing Decision 2016/1251 for recreational fisheries will be provided to end user.

The additional data collection source (questionnaire) is used for the collection of the price per commercial species and Days at sea. The data about price are collected by Sale notes and state questionnaire form "1-Fishery". The delivered price data are analysed and the most reliable prices used in the calculation of average price per species. The Days at sea collected by questionnaire form "1-Fishery" are used for data cross checks with the data received from logbooks.

#### 2. Description of methodologies used to estimate the value of landings

For the calculation of the Value of landings per species the average prices delivered from Sale notes and questionnaires will be multiplied with the landed weight delivered from logbooks.

#### 3. Description of methodologies used to estimate the average price (it is recommended to use weighted averages, trip by trip)

The data about price are collected by Sale notes and state questionnaire form "1-fishery". The delivered price data are analysed by experts and the most reliable prices are used for the calculation of average price.

#### 4. Description of methodologies used to plan collection of the complementary data (sample plan methodology, type of data collected, frequency of collection etc)

The data from state statistical form/questionnaire "1-Fisheries" are received from Central Statistical Bureau of Latvia (CSB). The primary information about prices and landed weight are provided annually from owners of fishing firms by species. The information about Days at sea grouped by fleet

segments received annually from the same questionnaire. The data covers all members of the population involved in the economic activity. Despite the fact that price per species and Days at sea data collection is based on questionnaire form, participation of the respondents is obligatory according to the Latvian legislation. All collected data are stored in the CSB database. Type of data collection for Latvian fishing fleet is “Census”. The data collection Response rate is 100 %. (max 900 words per Region)

### SECTION 3: ECONOMIC AND SOCIAL DATA

#### **Text Box 3A: Population segments for collection of economic and social data for fisheries**

*General comment: This Box fulfills paragraph 5 points (a) and (b) of Chapter III of the multi-annual Union programme and Article 2, Article 4 paragraphs (1), (2) and (5) and Article 5 paragraph (2) of this Decision. It is intended to specify data to be collected under Tables 5(A) and 6 of the multi-annual Union programme.*

##### 1. Description of methodologies used to choose the different sources of data

The economic data collection is implemented for all fishing companies involved in commercial fishery. The economic variables are collected by Central Statistical Bureau of Latvia (CSB) by state statistical form/questionnaire “1-Fisheries” where economic information is aggregated by fleet segments. Primary economic information will be received annually from owners of fishing firms by the state statistical form/questionnaire “1-Fisheries”. The collected economic information is based on the annual balance sheet.

The data about prices per commercial species are collected from two data sources: Sale notes and state questionnaire form “1-Fishery”. The collected prices data are analysed and the most reliable prices used in the calculation of average price. The Days at sea are collected additionally by questionnaire form “1-Fishery. The received data are used for data cross checks with the data received from logbooks.

##### 2. Description of methodologies used to choose the different types of data collection

Economic data collection covers all members of the population involved in the commercial activity. Despite on the fact that economic data collection is based on questionnaire form, participation of the responders is obligatory according to the Latvian legislation. All economic data are stored in the CSB database. Type of data collection for Latvian fishing fleet is “Census”. The Response rate for the collected data is 100 %.

##### 3. Description of methodologies used to choose sampling frame and allocation scheme

The Target population is represented by number of vessels included in the Fleet Register for each fleet segment at the 31st of December of the sample year.

##### 4. Description of methodologies used for estimation procedures

For the calculation of the Value of landings per species as well as Gross value of landings the average prices will be multiplied with landed weight.

For the calculation of the Value of unpaid labour data about average personal costs in the segment and number of unpaid persons for each segment will be used.

The data for Consumption on fixed capital and Value of physical capital will be collected by questionnaires. The calculations are not applied.

The Financial position will be calculated based on the collected data about debts and total company assets attributed to the fishery.

The Energy consumption calculation will be based on collected average price for fuel and data collected for Energy costs.

The FTE national will be calculated based on the collected data about total employment and days at sea as it was recommended by Study No FISH/2005/14 Calculation of labour including FTE in fisheries.

The data for quota or other fishing rights has a zero value due to the absence of fishing rights market in Latvia.

The definitions and methodology for other variables will be applied according to the definitions provided by the documents “Definition of socio economic variables described in EU MAP” and “Methodologies for the socio-economic data described in EU MAP”.

#### 5. Description of methodologies used on data quality

The economic data collection will be implemented for all member of the population and for each fishing company involved in commercial fishery. The Response rate and Achievement sample rate for economic data collection is planned to be 100%. The economic data collection will not be implemented for the recreational fishery. However for the recreational fishery biological data will be collected according to the Commission Implementing Decision 2016/1251 Commission Implementing Decision 2016/1251 table 3 (Species to be collected for recreational fisheries).

The following quality indicators will be calculated for the data collection type “Census”:

- Accuracy indicator for type of error Bias:
  - o Coverage rate
  - o Response rate
  - o Achievement sample rate
- Accuracy indicator for type of error Variability (only in cases when Response rate is less than 70% ):
  - o Coefficient of Variation

In order to protect data confidentiality it is planned not to submit to end user the following collected data sets:

- for inactive vessels the collected data of Capital costs and Capital value, if the number of vessels is less than 10 vessels in segment;
- the collected economic data for less than 10 long distance sea vessels operated in Atlantic region in each segment separated by fishing area;
- the collected economic data for less than 5 companies with the long distance sea vessels operated in Atlantic region in each segment separated by fishing area.

(The vessels operating in Atlantic region cannot be clustered with the Baltic Sea fleet due to the significant differences in type of fishing activities and operating areas.)

*(max 900 words per Region)*

## SECTION 3: ECONOMIC AND SOCIAL DATA

### **Pilot Study 3: Data on employment by education level and nationality**

*General comment: This Box fulfills paragraph 5 point (b) and paragraph 6 point (b) of Chapter III of the multi-annual Union programme and Article 2 and Article 3 paragraph (3) point (c) of this Decision. It is intended to specify data to be collected under Table 6 of the multi-annual Union programme.*

#### 1. Aim of pilot study

The main aim of the pilot study is organization and implementation of the social data collection. The pilot study results can provide adequate data on employment variability. The collected social data could be used for the estimation of the number of employees' in fishery sector. Furthermore the received social data could be included into subsequent forecast for the development of Latvian fishing fleet. The pilot study is going to be conducted in order to evaluate feasibility of the social data collection for the variables:

- employment by gender,
- employment by age,
- employment by education level,
- nationality,
- employment by employment status.

#### 2. Duration of pilot study

Duration of the pilot survey will be 2 years. In 2017 we will prepare the technical specification of the pilot study that will be based on the recommendations of STECF. The technical specification of the survey will be prepared during first half of 2017. The survey itself will be performed by a firm that is specialised on running social inquiries. The firm will be selected by procurement procedure that will be organised in the first half of summer of 2017. The survey itself will be started in autumn of 2017 and will last for 1 year. The results of the survey will be analysed in September-December of 2018.

#### 3. Methodology and expected outcomes of pilot study

The social data collection will be based on survey. The survey would be implemented based on questionnaires forms. The questionnaires will be distributed between fishing companies. The planned coverage rate for the survey will be around 30% of companies in each sector (fishery, aquaculture, fish processing).

The age classes, education level and employment status does not defined in the document "Definition of socio economic variables described in EU MAP". The obtained results of the study could be aggregated to the following groups for each variable:

##### Employment by gender:

- Male
- Female

##### The sector of fishery:

- Distance-fishery
- Fishery in the Baltic sea and Gulf of Riga
- Coastal fishery
- Inland water fishery
- Aquaculture

- Fish processing

The term of occupation in the sector:

- 5 years and under
- 6-10 years
- 11-15 years
- 16-20 years
- 21 years and over

Employment by age where age categories are applied:

- 21 and under
- 22-36
- 37-51
- 52-65
- 66 and over

Employment by education level where following education level are applied:

- Less than secondary education
- Secondary education
- College or professional course
- Bachelor or 4 year degree
- Master degree
- Doctor degree
- Other (to include the answer)

The area of education where following groups are applied:

- Forestry and Agriculture
- Education and trainings
- Economic and Finance
- Business and Administration
- Medicine and Health
- Computer science and Technology
- Culture and Social science
- Other (to include the answer)

The nationality:

- EU citizen
- Non EU citizen
- Other (to include the answer)

The employment by employment status:

- Full time employment
- Part time employment
- Student
- Retired
- Other (to include the answer)

*(max 900 words)*

## SECTION 3: ECONOMIC AND SOCIAL DATA

### **Text Box 3B: Population segments for collection of economic and social data for aquaculture**

*General comment: This Box fulfills paragraph 6 points (a) and (b) of Chapter III of the multi-annual Union programme and Article 2, Article 4 paragraphs (1) and (5) and Article 5 paragraph (2) of this Decision. It is intended to specify data to be collected under Tables 6 and 7 of the multi-annual Union programme.*

#### 1. Description of methodologies used to choose the different sources of data

Data on aquaculture in Latvia could be obtained only from economically active enterprises which farm market size fish for sale or produce young fish for restocking and on growing. There is only freshwater aquaculture in Latvia and there are no net-cage farms in sea and fresh water sites.

The main activities of the Latvian aquaculture enterprises are as follows:

- Fish cultivation in freshwater earth ponds and land based farms in special tanks and growing up for market sale.
- Short term fish cultivation in freshwater ponds for commercial angling.
- Fish cultivation in household ponds for self-consumption or hobby angling.
- Artificial breeding of young fish for restocking in coastal seawater and inland freshwater. The government program is implemented and one government institution is involved in the restocking process.

The total volume and value of freshwater aquaculture production in Latvia were less than 1% between 2012 and 2014 and was around 0.06% in average from the total Union production reported to EUROSTAT (according to the Regulation (EC) No762/2008). Although the freshwater aquaculture data collection is not mandatory (according to the Commission Implementing Decision 2016/1251 Chapter III Data Requirements section 6) some economic variables will be collected. The list of variables is presented in Table3B Population segments. The economic data collection will be carried out for the basic information which could provide an overview of the aquaculture sector, as well as serve as a basis for the calculation of the sector's economic efficiency. The economic variables are collected by Central Statistical Bureau of Latvia (CSB) by state statistical form/questionnaire "1-Aquaculture". Apart from economic data the questionnaire includes information on production by species in tonnes and value, total area of fish ponds, volume of rearing tanks and number of employment.

#### 2. Description of methodologies used to choose the different types of data collection

Primary economic information from state statistical form/questionnaire "1-Aquaculture" is received annually from owners of fishing firms. Type of data collection for Latvian aquaculture is "Census". All received economic data are stored in the CSB database. The Response rate for the collected data is 100 %.

#### 3. Description of methodologies used to choose sampling frame and allocation scheme

The questionnaires should be filled in by each company involved in commercial activity during the sampling year. Due to the small number of the aquaculture enterprises collected data would be presented only as a 'total' and not disaggregated into categories by the number of persons employed.

#### 4. Description of methodologies used for estimation procedures

For the calculation of Value of unpaid labour will be used data about average personal costs and

number of unpaid persons. The definitions and methodology for other variables will be applied according to the definitions provided by the documents “Definition of socio economic variables described in EU MAP” and “Methodologies for the socio-economic data described in EU MAP”.

#### 5. Description of methodologies used on data quality

The following quality indicators will be calculated for the data collection type “Census”:

- Accuracy indicator for type of error Bias:
  - o Coverage rate
  - o Responce rate
  - o Achievement rate
- Accuracy indicator for type of error Variability (only in cases when response rate is less than 70% ):
  - o Coefficient of Variation

*(max 1000 words)*

SECTION 3: ECONOMIC AND SOCIAL DATA

**Pilot Study 4: Environmental data on aquaculture**

*General comment: This Box fulfills paragraph 6 point (c) of Chapter III of the multi-annual Union programme and Article 2 and Article 4 paragraph (3) point (d) of this Decision. It is intended to specify data to be collected under Table 8 of the multi-annual Union programme.*

*1. Aim of pilot study*

The Commission Implementing Decision 2016/1251 Chapter III Data Requirements section 6 defines that social, economic and environmental data collection is optional for freshwater aquaculture. As there is no aquaculture in sea or in coastal waters and the freshwater production is on the low level in Latvia it is not planned to collect environmental data in aquaculture sector. The pilot study is not planned.

*2. Duration of pilot study*

Only freshwater aquaculture. The pilot study is not planned.

*3. Methodology and expected outcomes of pilot study*

Only freshwater aquaculture. The pilot study is not planned.

*(max 900 words)*

## SECTION 3: ECONOMIC AND SOCIAL DATA

### **Text Box 3C: Population segments for collection of economic and social data for the processing industry**

*General comment: This Box fulfills footnote 6 of paragraph 1.1(d) of Chapter III of the multi-annual Union programme, Article 2, Article 4 paragraphs (1) and (5) and Article 5 paragraph (2) of this Decision. It is intended to specify data to be collected under Table 11 of the multi-annual Union programme.*

#### 1. Description of methodologies used to choose the different sources of data

According to the Commission Implementing Decision 2016/1251 Table 11 the processing industry data collection could be carried out on a voluntary basis. However the data concerning processing industry in Latvia are collected for the EUROSTAT database. The same data could be provided also for Data collection needs. The data collection for the fish processing industry is based on questionnaires/statistical forms and State Revenue Service information. The data is provided to Central Statistical Bureau of Latvia by fish processing enterprises in accordance with their bookkeeping information.

#### 2. Description of methodologies used to choose the different types of data collection

All economic active enterprises having the EUROSTAT classification according to definition NACE Rev.2 10.2. 'Products' "Processing and preserving of fish, crustaceans and mollusks" are involved in the surveys. The participation of the responders is obligatory according to the Latvian national legislation. All economic data are stored in the CSB database. Type of data collection is "Census". The Response rate for the collected data is 100%.

#### 3. Description of methodologies used to choose sampling frame and allocation scheme

The questionnaires should be filled in by each company involved in commercial activity during the sampling year.

#### 4. Description of methodologies used for estimation procedures

For the calculation of Value of unpaid labour data about average personal costs and number of unpaid persons will be used. The definitions and methodology for the other variables will be applied according to the definitions provided by the documents "Definition of socio economic variables described in EU MAP" and "Methodologies for the socio-economic data described in EU MAP".

#### 5. Description of methodologies used on data quality

The following quality indicators will be calculated for the data collection type "Census":

- Accuracy indicator for type of error Bias:
  - o Coverage rate
  - o Response rate
  - o Achievement rate
- Accuracy indicator for type of error Variability (only in cases when response rate is less than 70% ):
  - o Coefficient of Variation

*(max 1000 words)*

**Text Box 4A: Sampling plan description for biological data**

*General Comment: This Box fulfills Article 3, Article 4 paragraph (4) and Article 8 of this Decision and forms the basis for the fulfilment of paragraph 2 point (a)(i) of Chapter III of the multi-annual Union programme. This Table refers to data to be collected under Tables 1(A), 1(B) and 1(C) of the multi-annual Union programme.*

**Baltic Sea**

Data will be collected for all fleet segments in the Baltic Sea. Collected material contains data from open sea vessels and coastal area boats (vessels < 12 m). Primary sampling unit for all segments is vessel trip. The sampling effort will be allocated taking into account the recommendation that metier should be sampled monthly if the fishing trips are less than two weeks long. The duration of fishing trips of all metiers in the Baltic is less than two weeks long therefore they all will be sampled on monthly basis. However, e.g. in herring trapnet fishery, the samples are collected more often because these data are used as tuning fleet in the assessment.

In 2015, 55 trawlers and 5 gillnetters were fishing in the open part of the Baltic Sea. In the second half of 2016, four gillnetters were scrapped. Trawlers belong to two segments: 12-< 18 m operating in the Gulf of Riga and 24-<40m operating in the Baltic Sea and the Gulf of Riga. The most numerous segment is the small vessels with length <12 m with polyvalent passive gears, operating in the coastal zone.

Information for each year about open sea vessels will be obtained from Fisheries Department in Ministry of Agriculture. In the end of each year, the Department establishes a list for the next year with fishing vessels which have the right to carry out commercial fishing in the Baltic Sea and the Gulf of Riga outside the coastal waters. Information in this list is split by species and fishing areas for each individual vessel.

Using information from this list and logbook data from last year three separate vessel lists will be created:

- List with ships that can perform pelagic fishery in the Baltic Sea,
- List with ships that can perform demersal fishery in the Baltic Sea,
- List with ships that can perform pelagic fishery in the Gulf of Riga;

Part of the vessels depending from the gear used and fishing area can be in different lists. For these three kinds of fisheries probability sample survey, in which data are collected from randomly selected units of a population, will be used. Excel function Ran between will be used for random selecting of ships from the list.

Random ship selection from the corresponding list will be used for pelagic and demersal fishery in the open sea. Vessel selecting protocol should note the following information:

- The name of selected vessel,
- Type of fishing / segment,
- Is able to enter into contact with the ship's representative - (negotiation date, time, contact person, phone),
- Does the ship is available for data collection on the next voyage (yes / no, if "no" then the reason why it is not possible),
- Does the ship is suitable for the observer to work (yes / no),
- Do contact with a representative of the fishing vessel is successful (yes / no),
- Has the journey taken place on the selected ship (yes / no)?

If is not possible to carry out the planned trip, the selection process is repeated and next ship from the list is selected.

Biological data collection from the pelagic fishery in the Gulf of Riga will be performed using random draw from vessels and the samples will be collected from the selected vessels in the harbours.

In the coastal (small scale) fisheries non-probability sample survey, in which data are collected from non-randomly selected units of a population will be used. In the coastal fishery we will conclude contracts with several fishermen for the self-sampling and collection of biological samples. These fishermen will evenly cover the coastal area. The sampling will include also separate on-board visits to fisherman and comparison with the self-sampling data.

Biological information length, age, weigh, sex ratio and sexual maturity will be collected for 10 species: *Anguilla anguilla*, *Clupea harengus*, *Gadus morhua*, *Perca fluviatilis*, *Platichthys flesus*, *Psetta maxima*, *Salmo salar*, *Salmo trutta*, *Sander lucioperca* and *Sprattus sprattus*. Problems with maturity determination for *Salmo salar*, *Salmo trutta*, *Sander lucioperca* can be in the coastal fishery. Fishermen's sell fishes ungutted. Maturity stage can be determined by season. Target species in the pelagic fishery in the Gulf of Riga is *Clupea harengus*. Target species in the pelagic fishery in the Baltic Sea are *Sprattus sprattus* and *Clupea harengus*. Target species in the demersal fishery in the Baltic Sea are *Gadus morhua* and *Platichthys flesus*. Target species in the coastal fishery are all selected species for biological data collection except *Sprattus sprattus*.

During the on-board sampling comprehensive sampling of all species will be performed. It should be highlighted that in the Baltic Sea most of the metier perform rather clean fishery and the by-catch of non-target species is low or could be absent at all. The on-board sampling will be used for demersal fishery where the discard level for flounder should be determined. In metiers where discards are low sampling in harbours will be applied except trawl fishery targeting *Sprattus sprattus* where additionally on-board sampling will be performed to estimate the by-catch of herring. During the on-board sampling data are collected from each fishery act.

Quality of obtained biological and length data are accessed by calculating precision for each species, quarter, gear and length/gender/age class using bootstrap method to see if the collected sample size is sufficient to achieve precision of 5% or 20%.

### **Eastern Arctic**

There is only one Latvian vessels fishing in the Eastern Arctic. The vessel is targeting redfish (*Sebastes mentella*) with pelagic trawl.

All fishing trips in 2013-2015 have been covered. Rather clean fishery with low by-catch which is regularly estimated. Discard level is low and is also regularly estimated. Since the by-catch level is low and the on-board sampling will be applied the concurrent sampling method will be used. Only on-board sampling is possible because the catches are landed in foreign ports. Full information on landings and discards will be available. The discard volume is determined for every fishing operation. The sampling data of biological parameters of the catches are submitted to the relevant assessment working groups.

Quality of obtained biological and length data are accessed by calculating precision for each species, quarter, gear and length/gender/age class using bootstrap method to see if the collected sample size is sufficient to achieve precision of 5% or 20%.

### **Other regions (CECAF area Central East Atlantic)**

Only a few Latvian vessels are fishing in this area (in 2013-2014 four vessels, in 2015 two vessels). All vessels were fishing with pelagic trawl and targeting assemblage of small pelagic fishes. This is a fishery targeting assemblage of pelagic species the main of which are *Trachurus* sp., *Scomber japonicus*, *Scomber scombrus* and *Sardinella maderensis*. The discard level is low. Starting with 2012 the sampling of pelagic fisheries is performed on the basis of multi-lateral agreement between Germany, Latvia, Lithuania, the Netherlands and Poland by local observers. The sampling results are presented in the Annual report of the Netherlands.

*(max 900 words per Region)*

Baltic International Trawl Survey - BITS Q1

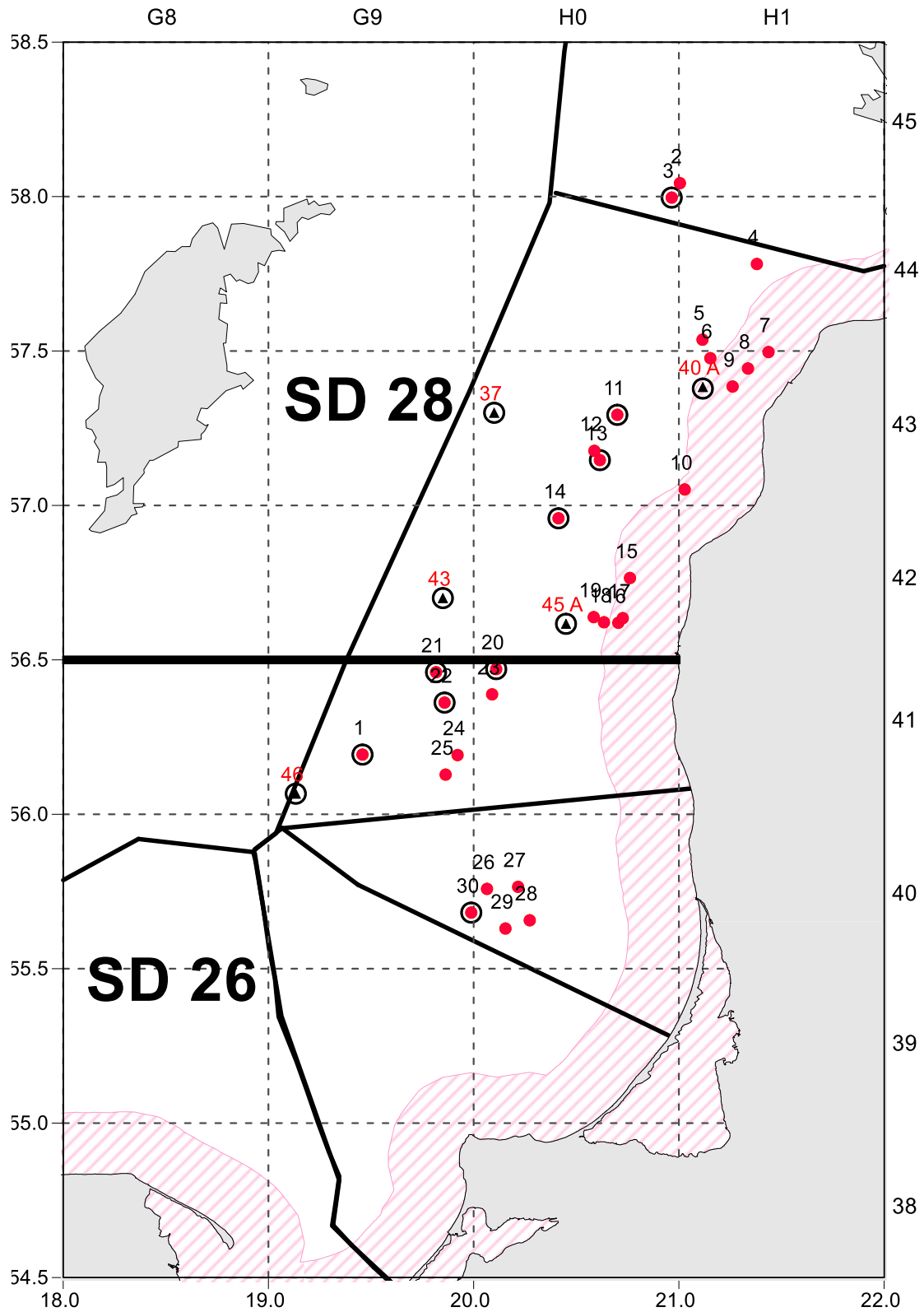


Figure G.1. Location of the realized fish control-hauls (marked with red dots) and the HELCOM standard hydrological stations (marked with black triangles), ichthyoplankton stations (marked with black circles, black lines - national fishing zone borders (BITS 2016, March).

**Baltic International Trawl Survey - BITS Q4**

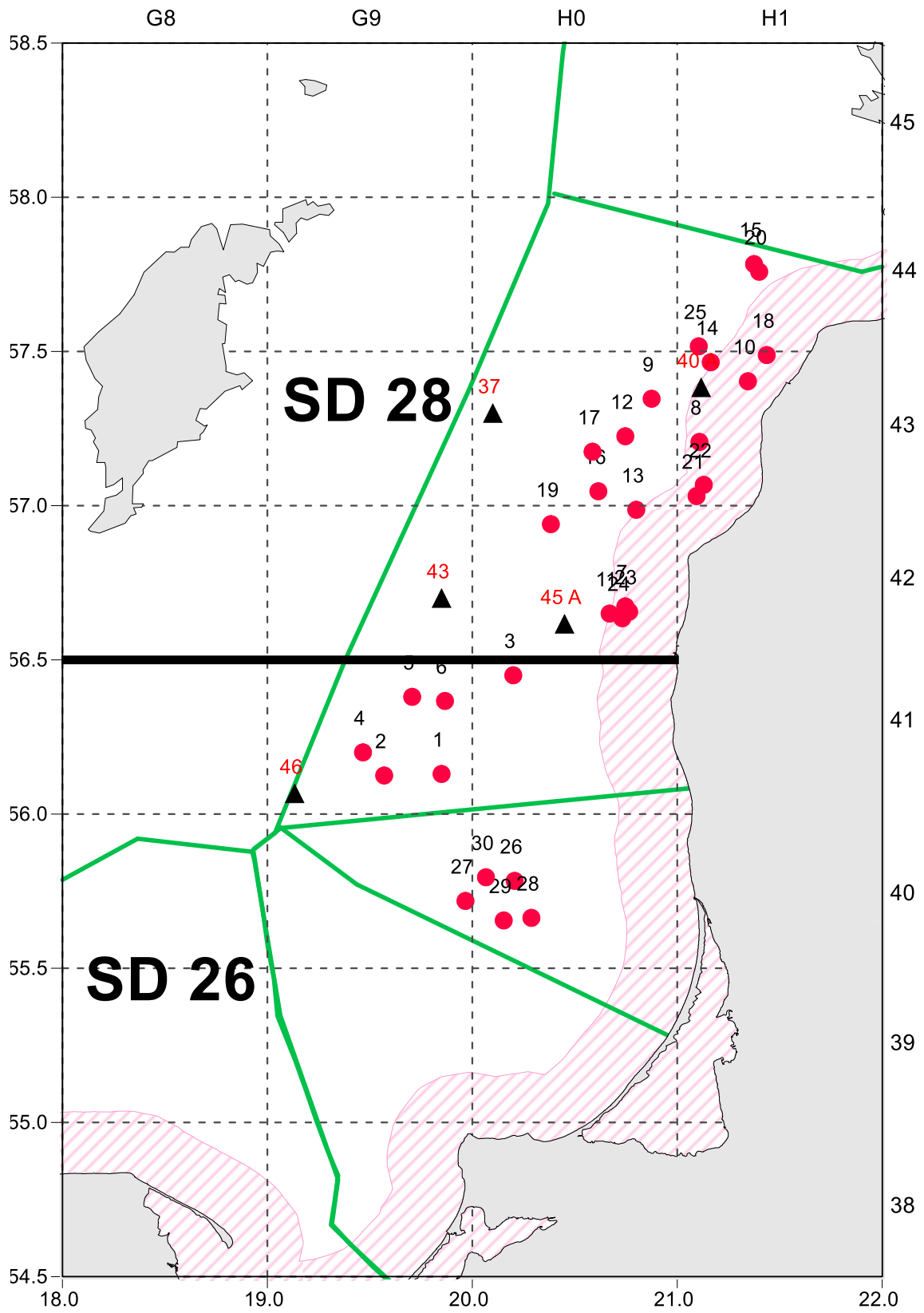


Figure G.2. Planned trawling stations (● trawling positions; ▲ oceanographic stations; — Border of fishing zones (BITS 2016, December)).

Baltic International Acoustic Survey - BIAS

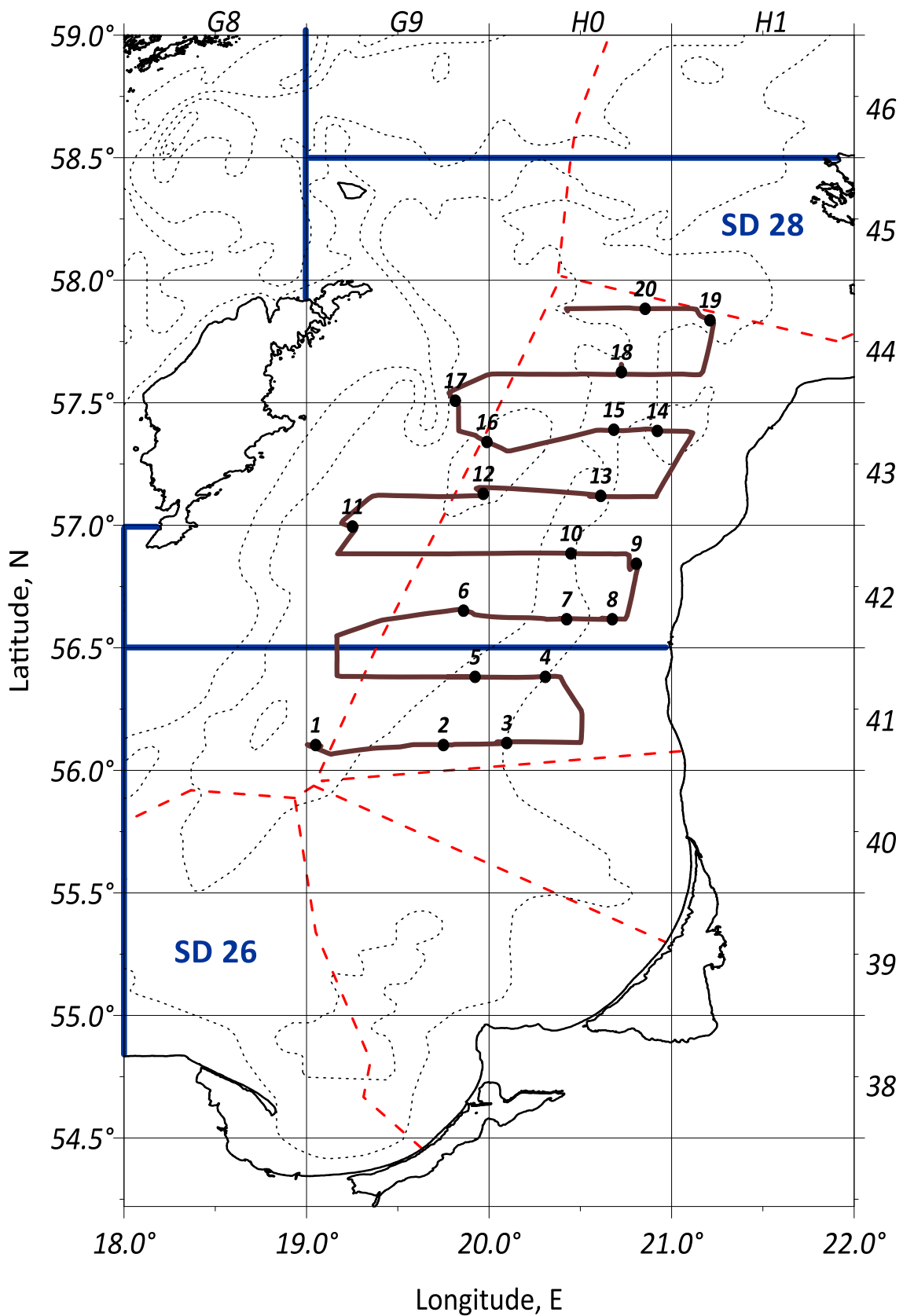


Figure G.3: Cruise track design and trawling positions of the Latvian-Polish hydro acoustic survey on the r/v "Baltica" in the period of 08.-18.10.2015.

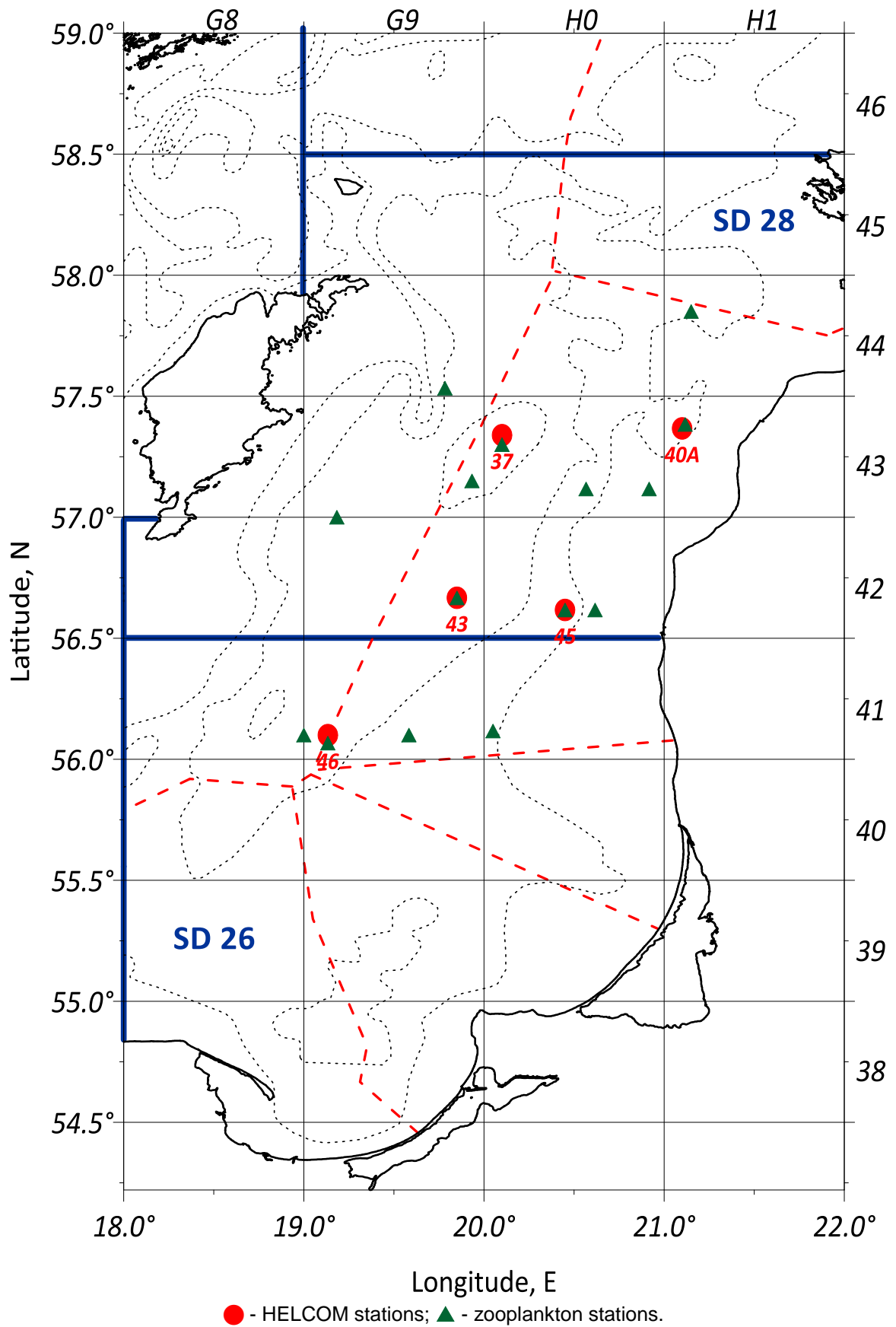


Figure G.4: Locations of the zooplankton stations performed during the Latvian-Polish hydro acoustic survey on the r/v "Baltica" in the period of 08.-18.10.2015.

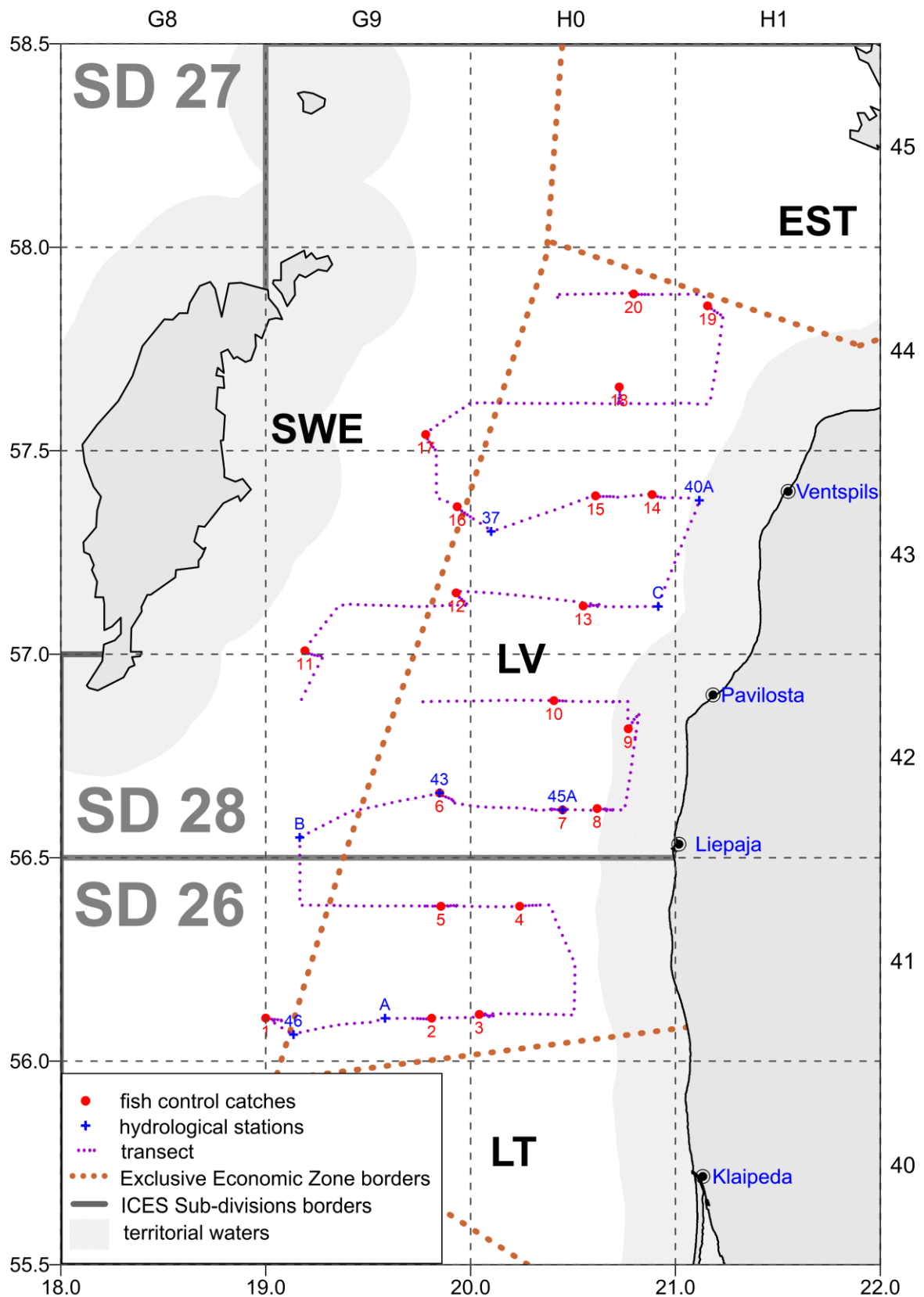


Figure G.5: Locations of the hydrological stations performed during the Latvian-Polish hydro acoustic survey on the r/v "Baltica" in the period of 08.-18.10.2015.

Gulf of Riga Acoustic Herring Survey - GRAHS

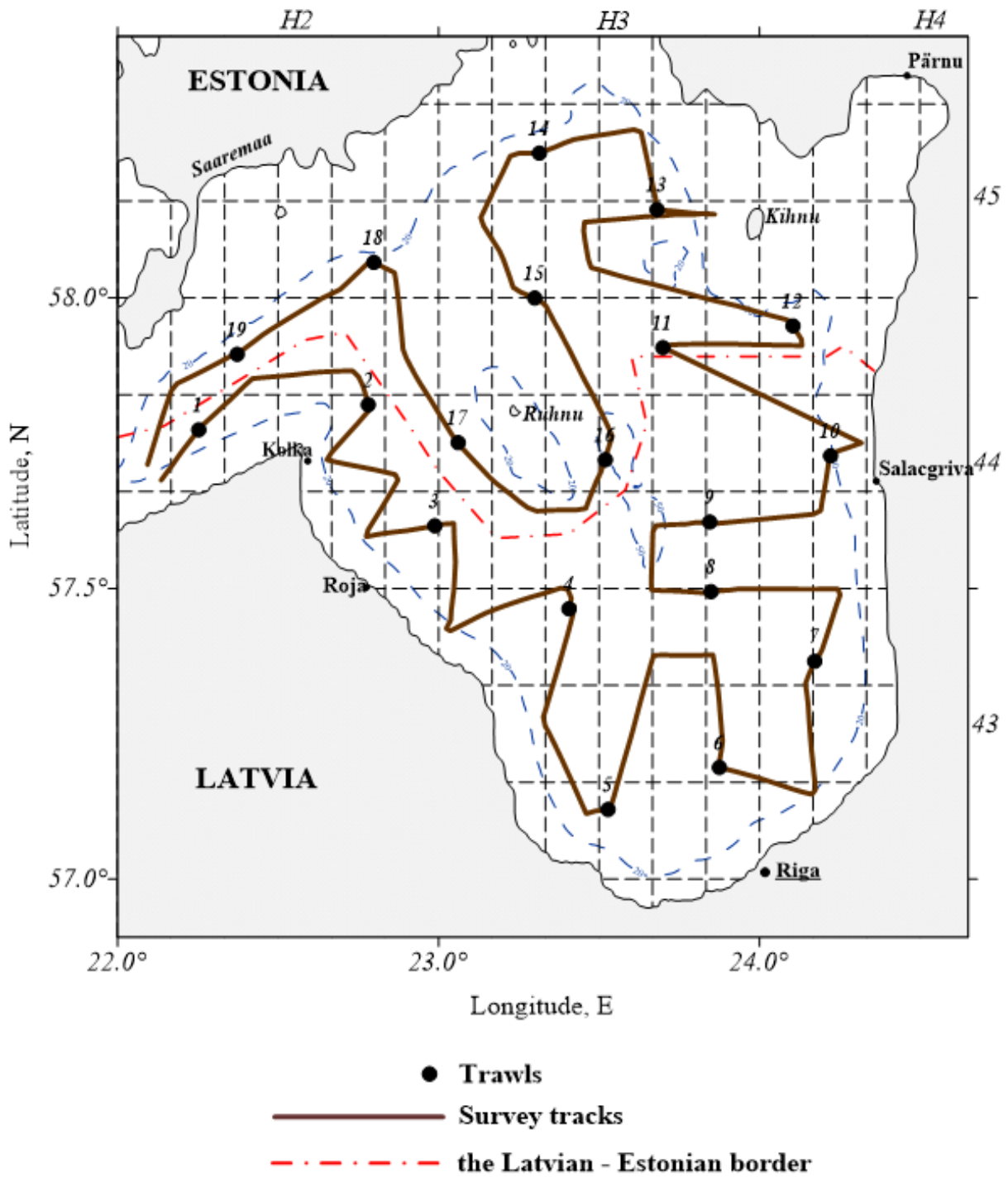


Figure G.6: Cruise track design and trawling positions of the Latvian-Estonian hydro acoustic survey in the Gulf of Riga. Hydrological stations are made in the positions of trawling.

### Sprat Acoustic Survey - SPRAS

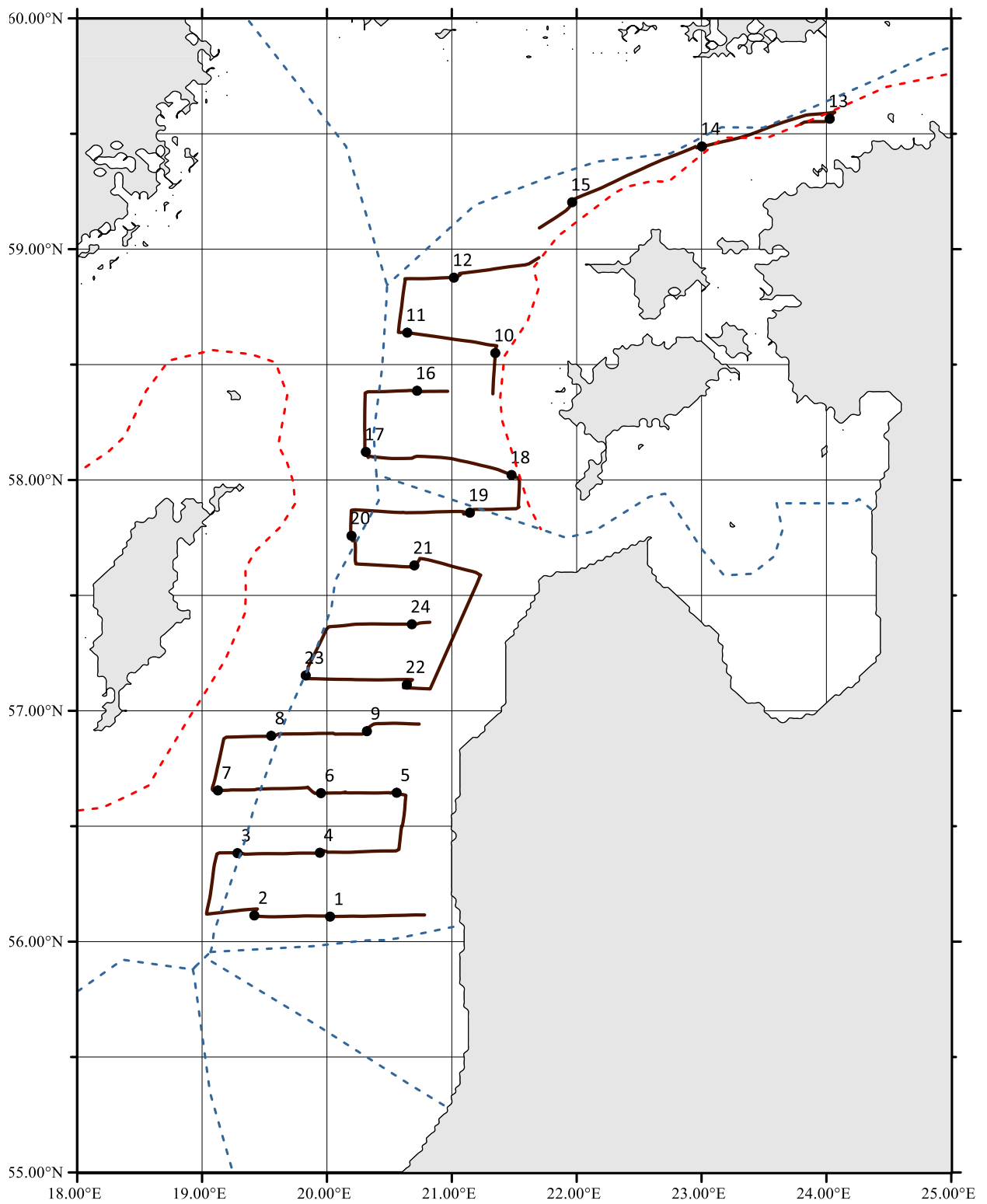


Figure G.7. Cruise track design and hauls of the Latvian-Estonian joint Baltic Acoustic Spring Survey on the f/v "Ulrika", 12-24.05.2015.

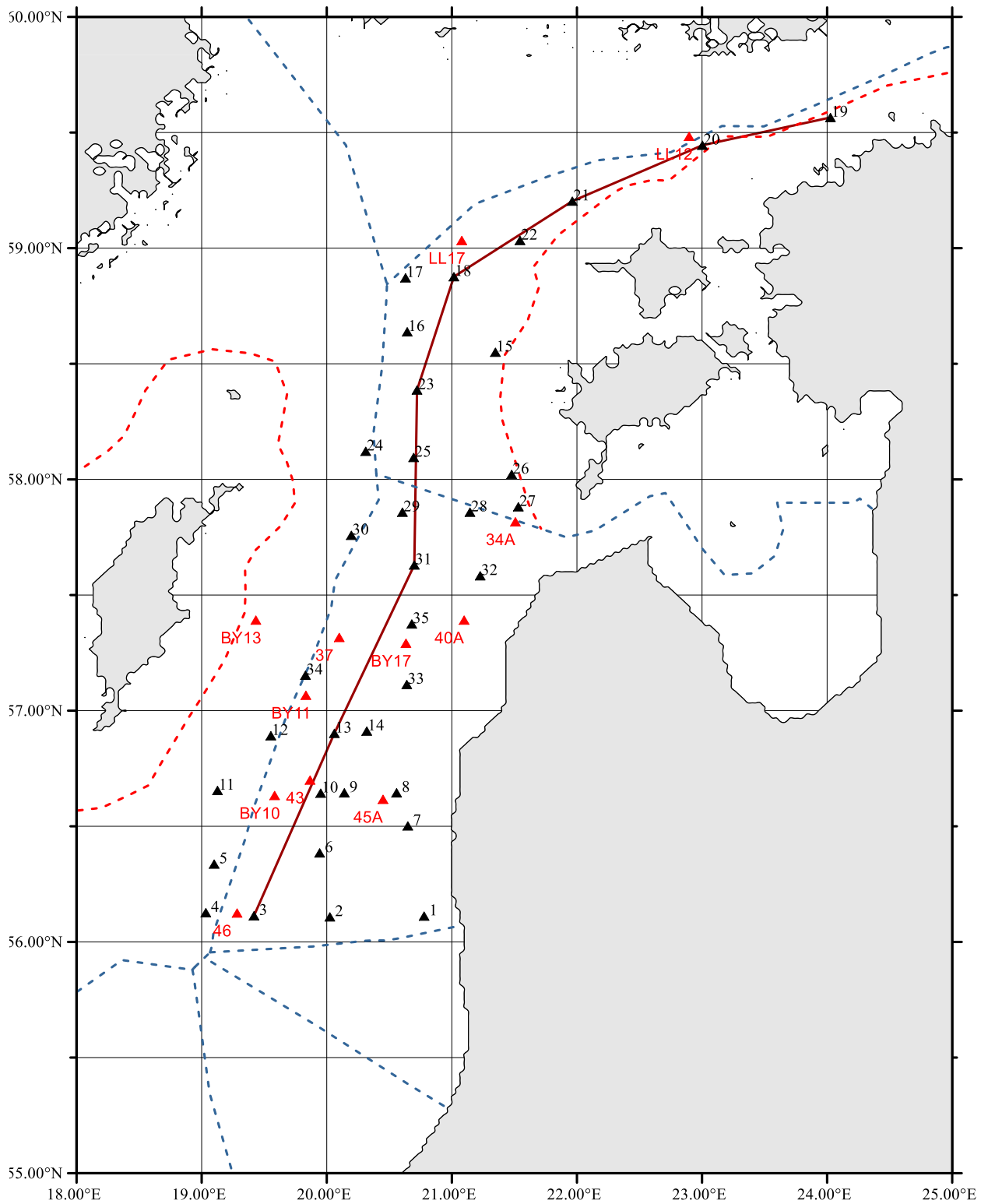


Figure G.8. Locations of the hydrological and hydro biological stations performed during the Latvian-Estonian joint Baltic Acoustic Spring Survey on the f/v "Ulrika", 12-24.05.2015 (▲ - HELCOM stations; ▲ - hydrological and hydro biological stations; — - hydrological profile).

Latvian Flatfishes Juvenile Survey

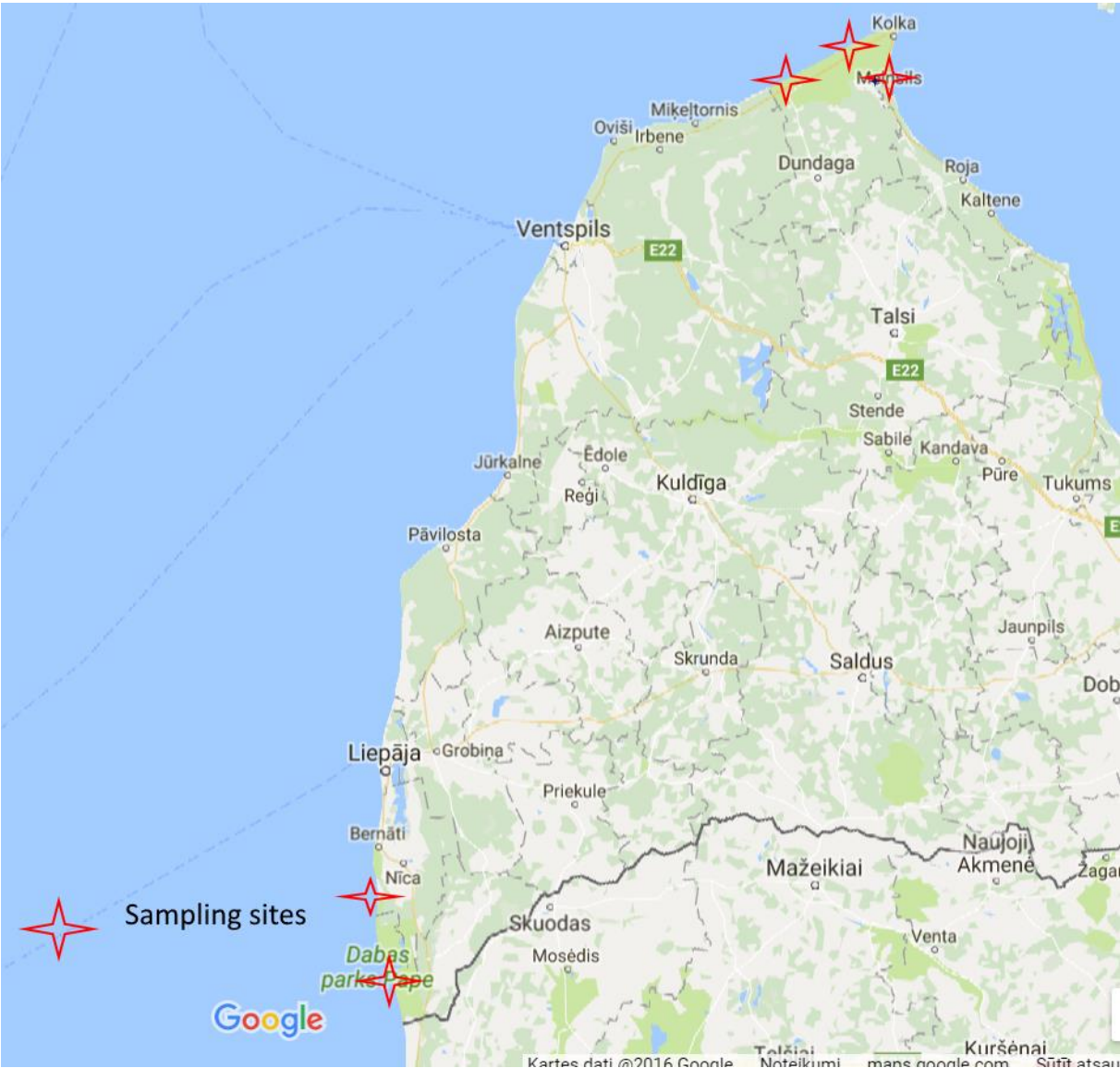


Fig.G.9. Sampling design for the Latvian flatfishes juvenile survey. ★ – sampling places.

Gulf of Riga Demersal Fish survey

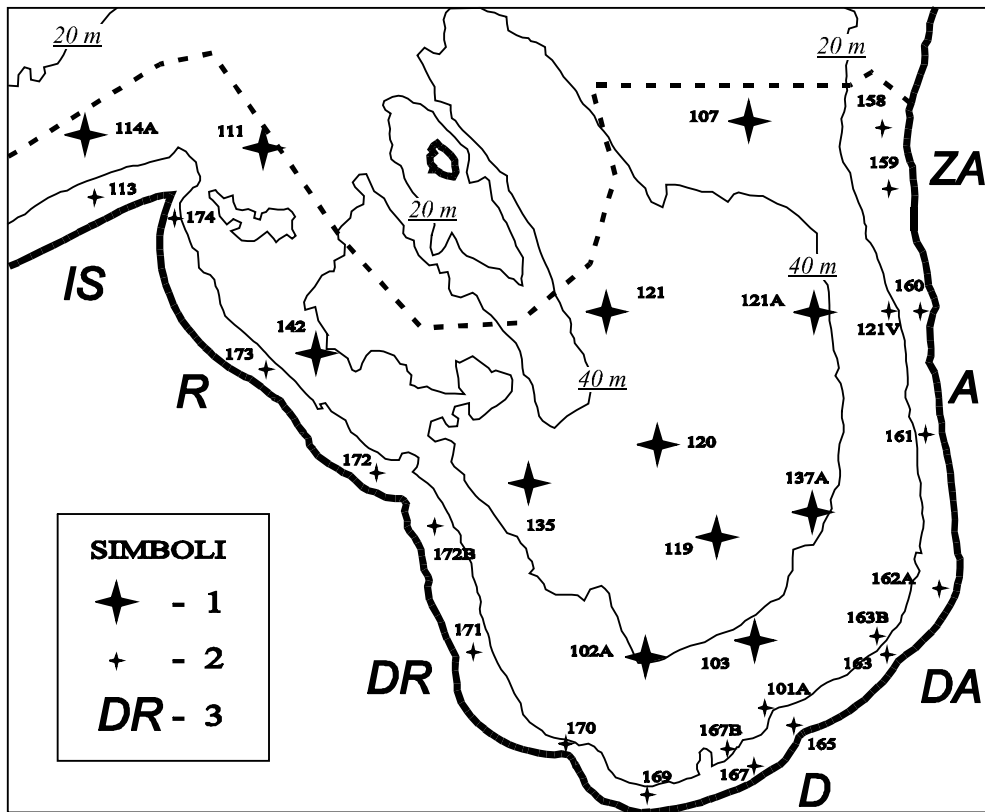


Fig.G.10. Benthic trawl, Hydrological and zooplankton station map in the Gulf of Riga

Coastal fish monitoring

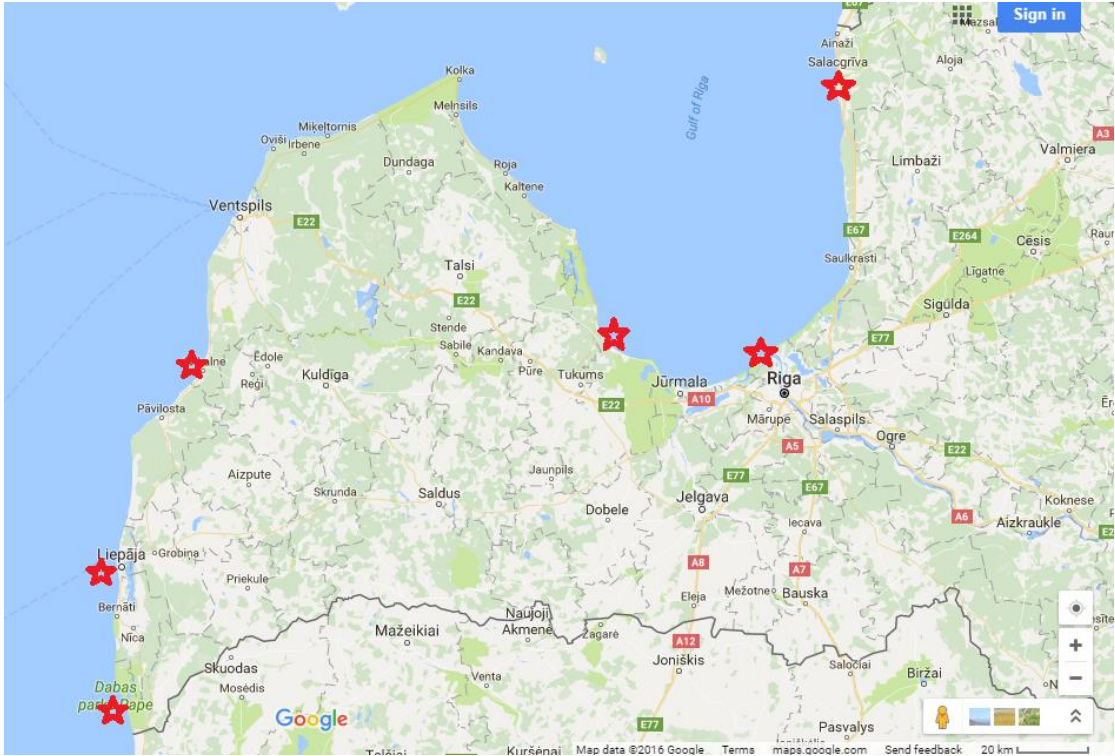


Fig.G.11. Sampling design for the Latvian coastal fish monitoring. ★ – sampling places.